



Water Vole Survey Report

Proposed Rainham Landfill Extension of Life

Veolia ES Landfill UK Ltd

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Basis of Report

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Table of Contents

Basis of Report	i
1.0 Introduction	1
1.1 Background.....	1
1.2 Details of the Proposed Development	1
1.3 Evidence of Technical Competence and Experience	1
1.4 Relevant Legislation and Policy	2
2.0 Methodology.....	3
2.1 Desk Study	3
2.2 Field Survey	3
2.3 Limitations	3
2.3.1 Desk Study	3
2.3.2 Field Survey	3
3.0 Results.....	4
3.1 Desk Study	4
3.2 Field Survey	4
4.0 Evaluation.....	1
4.1 Potential Opportunities for Biodiversity Enhancements.....	1
5.0 Conclusions	2
6.0 References	3

Tables in Text

Table 1: Summary of Features, their Habitat Suitability for Water Vole and Evidence Found.	1
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Appendices

Appendix A Water Vole Survey Map



1.0 Introduction

SLR Consulting Ltd (SLR) was commissioned in March 2023 by Veolia ES Landfill UK Ltd to carry out a Water Vole Survey in association with the planning application for the proposed 5-year extension of the landfill site with subsequent 2-year restoration period following completion of waste disposal at the site located at Rainham Landfill, Coldharbour Lane, Rainham, RM13 9YB (hereafter referred to as the 'Site').

The application site extends to approximately 156 hectares (ha) and is centred on National Grid reference TQ 52335 79495. The Site and survey boundaries can be seen in Appendix A.

The Site is currently being used as a landfill in the southern areas of the Site, with most of the remaining areas having undergoing restoration. The Site comprises an access road with weighbridge facilities and associated infrastructure, small, site compound with two temporary buildings, car parking and storage facilities, access roads and tracks, variety of vegetated habitats (mostly grassland types) and a small number of waterbodies and wet ditches. Most of the waterbodies and wet ditches are located in and around the area currently being used for soil wash treatment and soil stockpile in the northern corner, which is outside but adjacent to the Site redline boundary.

The Site is located adjacent to the northern bank of the River Thames and south of Rainham, Greater London, which comprises dense residential and commercial areas. The Site is accessed via an adjacent minor road on the northwest boundary (Coldharbour Road), with the busy A13 dual carriageway further to the north. Inner Thames Marshes Site of Special Scientific Interest (SSSI) is adjacent to the Site to the east and Rainham Marshes Local Nature Reserve (LNR) to the north of the Site, both are only separated from the Site by Coldharbour Road. The Site is also within 2 km of nine non-statutory and one proposed non-statutory designated sites: all Sites of Importance for Nature Conservation (SINC).

1.1 Background

A Preliminary Ecological Appraisal (PEA) for this development was produced by SLR in September 2023 [SLR 2023, 425.064709.00001 Rainham Landfill PEA Report] with an additional update in December 2023 [SLR 2023, 425.064709.00001 Rainham Landfill PEA Report v2], which found the Site to have 'high potential' for water vole *Arvicola amphibius*, and consequently recommended further surveys.

1.2 Details of the Proposed Development

The current site at Rainham has been used for landfill purposes since the original consent issued in 1998 and has undergone various planning applications since this time, with the most recent being issued in September 2016 (P1566.15, London Borough of Havering). The 2016 planning application consented to the continuation of waste inputs and operation of other waste management facilities (materials recycling facility, waste transfer station, open air composting site and associated soil plant, gas engines, leachate treatment plant, and incinerator bottom ash processing) until 2024 and re-profiling of final contours. A proposed planning application is seeking the consent for a 5-year extension of the landfill site with subsequent 2-year restoration period following completion of waste disposal.

1.3 Evidence of Technical Competence and Experience

Blake Perkins, who wrote this report and undertook the second survey, assisted by Edward Peters, is a Project Ecologist at SLR. They have an MSc in Conservation Ecology and over a years' experience in ecological consultancy. They have experience in a range of survey techniques such as UKHab surveys, BNG assessments, and various protected species surveys. Blake is a Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Darcey Haldar, who undertook the first survey, assisted by Marsha Perera, is a Project Ecologist at SLR. Darcey has an MSc in Conservation Ecology and has over two years' experience working in ecological



consultancy. Darcey is a Qualifying member of CIEEM, has a CSCS card and experience in a range of surveys and reports including UKHab, protected species surveys and Biodiversity Net Gain.

Edward Peters is a Graduate Ecologist at SLR. Edward has an MSc in Environmental Consultancy and has over one years' of professional experience within ecological consultancy and range of survey techniques, including various protected species surveys and reports.

Marsha Perera is a Graduate Ecologist at SLR. Marsha has a BSc (Hons) in Biodiversity and Conservation and a MSc Environment, Development and Politics. Marsha is experienced in a range of survey techniques, including UKHab surveys and various protected species surveys.

Ruth Holland ACIEEM, who reviewed this report, is an Associate Ecologist at SLR. Ruth has a BSc in Ecology and Conservation Management and a MSc in Biological Recording. She has over nine years of experience as a professional ecological consultant, during which time she has worked on many development projects.

This report has been subject to Quality Assurance review as per SLR's policies by Stephanie Attwood, Principal Ecologist at SLR. Steph has a MSc in Advanced Method of Taxonomy and Biodiversity, DIC Diploma of Imperial College and BSc (Hons) in Environmental Science. Steph has over 17 years' experience as a consultant ecologist and has undertaken numerous ecological assessments of this type. She is a full member of the Chartered Institute of Ecology and Environmental Management.

1.4 Relevant Legislation and Policy

Water voles are fully protected through inclusion on Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). In brief, this legislation makes it an offence to:

- Intentionally capture, kill, or injure water voles;
- Intentionally or recklessly damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care);
- Intentionally or recklessly disturb them in a place of shelter or protection (on purpose or by not taking enough care); and
- Possess, sell, control or transport live or dead water voles or parts of them (not water voles bred in captivity).

Water voles are also a Species of Principal Importance (as listed in Section 41 of the Natural Environment and Rural Communities Act (NERC) 2006). There is an expectation that adverse effects of development on a Species of Principal Importance should be avoided through planning conditions or obligations and that planning permission should be refused where harm to these species, or their habitats, may result, unless the need for, and benefits of, the development clearly outweigh the harm.



2.0 Methodology

2.1 Desk Study

An ecological data search was requested in May 2023 from eCountability in partnership with Greenspace Information for Greater London (GiGL) to provide records of protected, priority, and otherwise notable species around the Site. This report summarises the Water Vole records received from within 2 km search area.

The terms of use of data prevent the publication of the raw data and therefore a copy of the data search has not been included within this report.

2.2 Field Survey

The water vole surveys were undertaken on 5th April and 26th September 2023. The surveys covered four ditches and four ponds within the northeast corner, adjacent to the Site. The survey area is shown in Figure 1, A.

The surveys consisted of searching these sections of ditches and ponds for evidence of water vole activity and presence, such as droppings/latrines, burrows, feeding signs, footprints, above-ground nests, and runs through vegetation (Dean 2021 & Dean *et al* 2016).

Field evidence of other species that may be relevant to the conservation of water vole were also searched for, specifically otter *Lutra lutra*, brown rat *Rattus norvegicus*, and American mink *Neovison vison*.

2.3 Limitations

2.3.1 Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

2.3.2 Field Survey

The surveys took place within the breeding season for water voles (considered to be March to October in southeast England). It is considered that the survey methods and the weather conditions in the days prior to and during the survey were sufficient to detect the presence or absence of the species.

Due to the steep banks and dense vegetation around some of the ditches and ponds, only specific points could be accessed where it was seemed suitable and safe. As such, features may have been missed in the inaccessible areas.

Finally, an ecological study provides only a “snapshot” of the conditions prevailing at the time of survey. Lack of evidence does not necessarily preclude water vole from being present within an area at a later date; the species is highly mobile and can move in response to changes in environmental factors.



3.0 Results

3.1 Desk Study

GiGL returned 25 records of water vole within 2 km of the Site, with the most recent recorded in 2022. No records from within the Site were received. The Site is adjacent to Rainham Marshes SSSI, where water vole are known to be present.

3.2 Field Survey

The field survey found multiple sources of evidence of water vole alongside the waterbodies present on site.

At Pond 1, a latrine and potential burrows were observed in the September survey. In Pond 2, a latrine and trails were found, though due to the density of the marginal vegetation, burrows were not found. At Ditch 1, both a latrine and foraging activity typical of water vole was observed.

The habitat suitability for water voles has been assessed according to Water Vole Field Signs and Habitat Assessment, A Practical Guide to Water Vole Surveys (Dean, Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys 2021).

A summary of features, their habitat suitability for water vole and evidence found are detailed in Table 1.



Table 1: Summary of Features, their Habitat Suitability for Water Vole and Evidence Found.

Waterbody Reference and Image	Description	Mammal Evidence
Pond 1 	Pond 1 is found on the northeastern boundary of the Site. Though submergent vegetation was minimal, the marginal vegetation was made up of dense common reed grass <i>Phragmites australis</i>. Steep but shallow banks are found on one side of the waterbody. This pond is determined as 'good' value habitat for water voles.	05/04/2023 Not surveyed. 26/09/2023 Water vole latrine and potential burrows observed.
Pond 2 	Pond 2 is found northwest of Pond 1 and is larger. The southern bank is largely short amenity grass and annual herbs; however, <i>P. australis</i> is found in dense areas on the north and eastern banks. These banks are steep, particularly on the southern end. This pond is determined as 'good' value habitat for water voles.	05/04/2023 Two water vole latrines and feeding signs were observed. 26/09/2023 A potential old latrine and trails were observed.
Pond 3	Pond 3 is a lined pond with no submergent vegetation and limited marginal vegetation. The banks are shallow and predominantly gravel.	05/04/2023 No evidence.



Waterbody Reference and Image	Description	Mammal Evidence
	This pond is determined as 'negligible' value habitat for water voles.	26/09/2023 No evidence.
Pond 4 	Pond 4 has clear water and an inlet culvert on the northern boundary. There is no submergent vegetation and limited marginal vegetation. The banks are shallow and predominantly gravel. This pond is determined as 'negligible' value habitat for water voles.	05/04/2023 No evidence. 26/09/2023 No evidence.



Waterbody Reference and Image	Description	Mammal Evidence
Ditch 1 	Ditch 1 is wide and deep, likely with minimal fluctuation throughout the year. The banks are earth and steep, with dense <i>P. australis</i> and nettle <i>Urtica dioica</i>. This ditch is determined as 'good' value habitat for water voles.	05/04/2023 No evidence. 26/09/2023 Water vole latrines and foraging activity.



Waterbody Reference and Image	Description	Mammal Evidence
Ditch 2 	Ditch 2 was dry on both surveys, and likely only has minimal water in wet seasons. The bed was gravel, with short grasses and herbs growing. Banks were steep but the ditch was shallow in depth. This ditch is determined as 'poor' value habitat for water voles.	05/04/2023 Potential fox hole. 26/09/2023 No evidence of water vole on either survey.
Ditch 3 	Ditch 3 was dry in the September survey, with low patches of water in April. Vegetation was predominantly grasses. The banks were earth, but not steep. This ditch is determined as 'poor' value habitat for water voles.	05/04/2023 No evidence. 26/09/2023 No evidence of water vole. Dry at time of survey. Potential badger sett, single hole outlier.



Waterbody Reference and Image	Description	Mammal Evidence
Ditch 4 	Ditch 4 was dry in the September survey, with low patches of water in April. Vegetation was predominantly grasses. The banks were earth and gravel, and relatively steep in places. The ditch was found close to landfill works (soil wash treatment), therefore is likely disturbed by noise and potentially dust regularly. This ditch is determined as 'poor' value habitat for water voles.	05/04/2023 No evidence. 26/09/2023 No evidence. Dry at time of survey.



4.0 Evaluation

Evidence of water vole was discovered at Pond 1, and 2, and Ditch 1 during either one or both survey visits in April and September 2023. These waterbodies were assessed as good value habitat for this species. As such their presence is confirmed on site.

No evidence was found at any other waterbody, and these also were assessed as poor or negligible value habitat for water vole. This was due to a lack of submergent or marginal vegetation, a gravel-based bed, water and shallow gradient banks.

Pond 1 and 2 are unlikely to be affected directly by the current proposals to extend the life of the Site and development would not impact suitability of the habitat for water vole. Current Site activities, if not mitigated against, could affect these habitats indirectly via pollution and dust. Pond 2 especially has the potential to be affected as it is linked to the wider Site via ditches that may contain water in periods of heavy rainfall, which may wash pollutants into the waterbody.

Ditch 1 is also unlikely to be affected directly by the development, as it follows the outer boundary of the Site, and it is separated by landfill operations by mounds of land and scrub habitat. It does follow Coldharbour Lane, which is the only access road to the Site and currently receives a large volume of heavy vehicles.

Mitigation measures to minimise disturbance and impacts to water vole and their habitats include:

- Five metre buffers of works from the toe of the bank of waterbodies (Dean, Strachan, et al. 2016).
- Implementation of spill kits to prevent pollution spill into watercourses.
- Measures to reduce dust, soil run-off, and landfill leaching into watercourses.

4.1 Potential Opportunities for Biodiversity Enhancements

Potential opportunities for biodiversity enhancements include:

- Enhanced connectivity between watercourses and other habitats to provide opportunity for water voles to expand their population range to other areas, and in turn increase population size.
- Evaluation of all future ditch management work to include limiting major maintenance work (i.e., de-silting, bank re-profiling, flail mowing, etc.) to one bank per year and working shorter lengths of ditch at any one time.
- Habitat creation, such as wet ditches, or enhancement of existing poor value ditches would further increase population range. This could be included within the 2-year restoration plan post-development.
- Monitoring and regular removal of litter and debris from the water bodies and nearby area.



5.0 Conclusions

Evidence of water vole was observed across two survey visits on the Rainham Landfill Site. Evidence was found in Pond 1, Pond 2, and Ditch 1.

The current proposals to extend the life of the Site and the operational works on site are unlikely to directly impact these water bodies and associated water vole. However, these areas and the species may be indirectly impacted by pollution spills and run-off, as the waterbodies are hydrologically connected to the wider Site.

As such, mitigation measures are suggested for the works. If adhered to, the development is likely to be acceptable in terms of legislation and policy.

The current site management plan should be continued and reviewed regularly to ensure that these impacts are avoided and/or reduced. Any additional key actions should be included within EMP and CEMP documents for the Site, which could be secured through appropriately worded planning conditions.



6.0 References

- Dean, Mike. 2021. *Water Vole Field Signs and Habitat Assessment: A Practical Guide to Water Vole Surveys*. Pelagic Publishing.
- Dean, Mike, Rob Strachan, Derek Gow, and Richard Andrews. 2016. *The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series)*. London: The Mammal Society.





Appendix A Water Vole Survey Map

Water Vole Survey Report

Proposed Rainham Landfill Extension of Life

Veolia ES Landfill UK Ltd

SLR Project No.: 403.064839.00001

9 January 2024



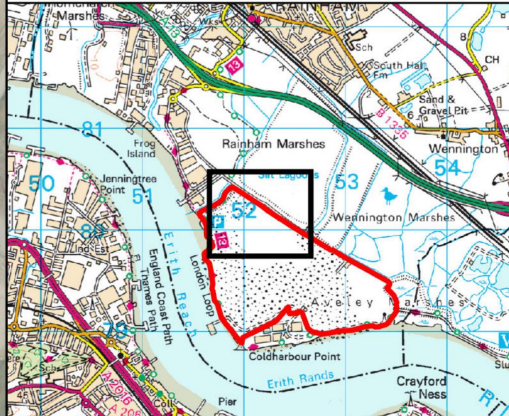
LEGEND

Site Boundary

Waterbody

Watercourse

P# = Pond ID
D# = Ditch ID



4/5 LOCHSIDE VIEW
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RAINHAM LANDFILL ECOLOGY

PRELIMINARY ECOLOGICAL APPRAISAL

WATER VOLE SURVEY MAP

FIGURE 6

Scale	1:3,000 @ A3	Date	NOVEMBER 2023
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